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EXCELLENCE OF INNOVATIVE ACTIVITY MANAGEMENT AT THE RUSSIAN ENTERPRISES

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Abstract: *The results of 2009-2015 showed that the Russian economy, which has grown over the last decade rapidly, yet extremely vulnerable. It is connected with the dependence of the domestic economy and industry from the global energy market. Moreover, the export of raw materials that occurred in Russia since 2002 ended with the change of price conjuncture of the global energy market. Nowadays it's very important to improve the management of innovative activity at the Russian enterprises, which is possible within the framework of investment and technological development of the national economy.*

Modern economic conditions impose to the Russian enterprises requirements quickly and flexibly to react to change of a market situation, to quickly change technological base of production and the range of products. The most effective modern instruments of increase of competitiveness level of the enterprises is continuous restructuring of production, management and property combined with real innovations.

Keywords: *Industrial enterprise, product quality, sustainable growth, competitiveness, innovation, improvement of innovative activity*

1. Introduction

Despite the fact that recent time shows activation of state stimulation of innovative activity, the share of Russian enterprises which are innovatively active is still at quite a low level.

Russian economic literature pays much attention to the problems. The problems of estimation and stimulation of innovative activity at enterprises, analysis of factors influencing the intensity of innovative transformations and peculiarities of

innovative technologies adoption are considered in works of Bukhunova S.M., Glisin F.F., Goghberg L.M., Doyl P., Doroshenko Y.A., Egorov A.Y., Cooper G.R., Melnik A.N., Milsberg E., Panov A.I., Polyakov S.G., Porter M., Prigozhin A.I., Symon G., Santo B., Safronova A.A., Simachev Y.V., Stepanova E.A., Tatarkin I.N., Tebekin A.V., Tkachenko I.N., Tovstyh R.E., Fatkhutdinov R.A., Havin D.V and others. Such researchers as Avdasheva S.B., Dolgopyatova T.G., Zhdanov D.A., Samosudov M.V., Asaul A.N., Dorzhieva

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E.L., Arustamyan G.S., Mikhailov D.M., Yudanov A.Y., Kondratiev V.B., Mezhov S.I., Kleiner G.B. come to the conclusion that nowadays Russian enterprises are involved into the innovative process very (Asaul, 2015). The majority of enterprises don't consider innovations as a preferred long-term strategy to achieve competitive advantage. The innovative activity models they have chosen limit the direct innovative effects significantly (Dolgopyatova, 2014; Mannapov, 2013).

The low level of innovative activity at enterprises is significantly connected with ineffective management of innovative activity, absence of business initiative and formed innovative culture, insufficient amount of financing of research and development.

Giving high estimation to contribution of the above mentioned scientists and to their results we have formed a scientific basis of the current work and offered our own suggestions. It's noteworthy that the level of development of the innovative activity problem at enterprises in relation to the current realities, particularly the issue of increase of innovative activity at enterprises by affecting their innovative potential with a group of factors influencing their innovative sensitivity, doesn't seem quite sufficient (covering all aspects of such a broad topic) to us (Mikhailov, 2010; Yudanov, 2012). The situation changing rapidly especially amid crisis and post-crisis development requires more detailed studying of the current issue and searching of new approaches.

The aim of the current research is to determine the level of innovative activity at Russian enterprises on the basis of the suggested methodic and analyzing reasons of low innovative activity at enterprises.

Practical significance of the authors' research consists in making contribution to development of one of the most topical economic tasks connected with search of directions for improvement of the management system at enterprises of

knowledge-intensive industries and increase of their innovative activity in order to develop competitiveness and to speed up the process of import substitution at the internal market.

2. Research methods and base

In the modern economics corporations become the centre of innovations and they have all the necessary conditions for that: ability to create research laboratories, high-qualified scientific personnel, ability to provide all stages of innovative process, developed channels for distribution of innovative products. However Russian corporations use the possible advantage very seldom which is confirmed by financial reports.

Analysis of reasons why Russian corporations lag behind foreign ones within innovative activity was carried out on the basis of financial reports. The most informative and reliable source for solving this problem is accounting statements, that's why the following forms of accounting statements, and particularly accounting balance sheet and financial results report will be used. The accounting statement analysis and data interpretation allowed obtaining information about the enterprise's real possibility to show innovative activity.

Methods of data analysis and formal logic have been used for this research. Sampling was carried out on the basis of official statistics for the period of 2002-2015 indicating innovation expenditures, number of new technologies, stuff involved into innovation process and etc. based on Federal service of state statistics and also Central bank of Russia data.

The authors have used the method of integrated estimation of corporations' innovative activity based on analysis and generalization of material and technical, financial, investment and research and development indicators of enterprises.

The material and technical aspect characterizes enterprise's ability to master

new equipment and modern production and technological lines and availability of equipment comparing with other means including buildings, constructions, transport (Mezhov, (2012). Estimation of the given direction will be carried out with the use of ratios of efficiency of non-circulating capital, replacement of fixed assets and capital-labor ratio.

Research and development aspect determines availability of enterprise’s intellectual property and its rights to it in the form of patents, licenses for inventions use, certificates for industrial models, useful models, software, trademarks and service marks, and also other rights and assets similar to those listed which are necessary for efficient innovative development (Semenova, 2014; Dorzhieva, 2014). Calculated indicators are ratios of availability of intellectual property and ratio of research and developments.

Enterprise’s investment activity is determined by financial and nonfinancial assets investment efficiency. Investment activity has significant influence on expansion of service sphere or distribution area, increase of the range of goods and services and their

successful realization, stable development (professional, personal growth) of human capital assets, efficiency of use of the whole base of services (finances, personnel, raw materials (Saburov, 2010). The main indicators here are ratio of investment activity, structures of long-term investments, ratio of investment and supply of long-term investments.

The financial aspect is very important since innovative solutions influence such sub-systems as production, finances, investments, fixed production assets, planning, and also key enterprise characteristics: financial stability, investment attractiveness, dividend policy and business. Innovative solutions divergently determine the production profitability and liquidity, the policy of formation of financing resources, mechanism of investment resources use (Bagautdinova, 2015). Corporation’s financial soundness becomes very important, as well as the level of its independence from creditors and other sources of debt financing. Here it’s advisable to use such factors as ratio of financial stability, financial independence and solvency.

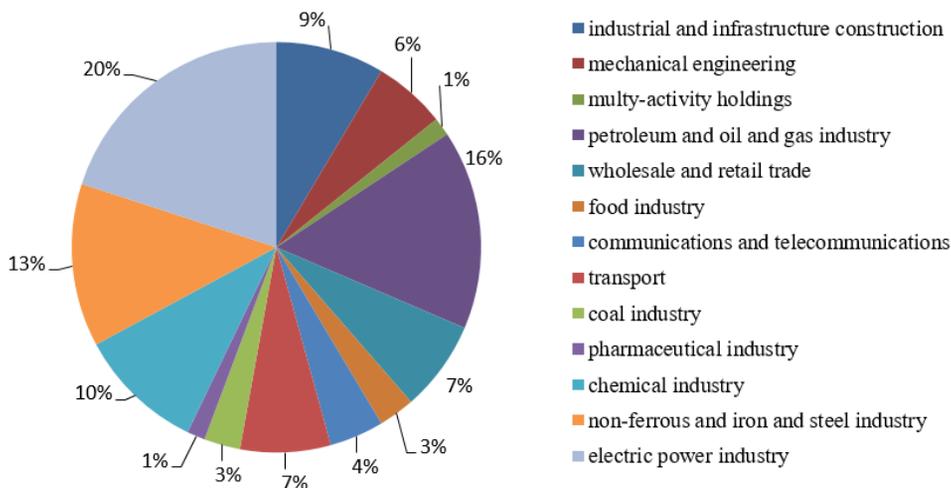


Figure 1. Industry classification of the analyzed corporations

On the basis of integrated method of innovative activity estimation, estimation of innovative activity of 70 largest Russian corporations has been carried out (selection of Russian corporations was carried out on the basis of data Rating Agency Expert RA with criteria of capital output). The majority of such enterprises is concentrated in the following branches of economy: electric power industry (20%), petroleum and oil and gas industry (16%), non-ferrous and iron and steel industry (13%) (Figure 1).

3. Influence of innovations on product quality and enterprises' excellence

Competitiveness and innovative activity are interconnected. While using outdated equipment and technologies manufacturers and consumers suffer a differential loss as a result of which they have to reduce costs of production based on innovations. Those enterprises who were the first to develop innovations are able to reduce costs of production and, consequently, cost of realizable goods which results in consolidation of their position in competitive struggle with market entities offering similar goods.

Thus, innovative activity helps market entities to survive in competitive struggle. Competitiveness and innovations are dialectically interconnected and complement one another since:

- firstly, competitiveness is the main factor of a market entity's sensitivity to technical innovations;
- secondly, competitiveness makes entrepreneurs constantly search and find new types of products and services which are necessary to consumers and able to satisfy their needs;
- thirdly, competitiveness makes entrepreneurs develop high quality products at market prices for the purpose of customer retention;

- fourthly, competitiveness promotes use of the most effective ways of production;
- fifthly, competitiveness forces entrepreneurs to respond quickly to consumers' desires;
- sixthly, competitiveness provides high income to those who work persistently and productively.

At the same time the comparison by overall level of innovative activity of Russia and developed countries shows significant lag of Russia by the given index: Germany – 66,9%, Canada 63,5%, Austria – 54,4%, Japan – 48,5%, the Czech Republic – 43,%, Poland – 23%, Russia – 10,1%. In Russia the specific weight of enterprises developing technological, marketing and organizational innovations in the total number of enterprises makes 10,9% by large and medium-sized enterprises, and 4,8% by small businesses. At the same time the share of expenses for innovations in enterprises' revenues makes 3,1%.

Enterprise's competitive ability includes a set of economic features which determine its position in the sector, for example, product characteristic, factors forming economic conditions of production and sales of products.

Organizational measures aimed at increase of Russian enterprises' competitive ability can be the following:

- technical and economical value and quality assurance which provides priority of enterprise's goods at the market;
- change of product quality and its technical and economical features in order to take into account consumer's requirements;
- research and development of product's advantages in comparison with substitutes;
- revealing of advantages and drawbacks of similar products manufactured by competitors and use of these results;

- determining possible modifications of a product by increasing its qualitative features;
- research and use of price factors of product's competitive growth;
- determination and use of possible high-priority spheres of application of products, especially innovative ones
- product differentiation.

Therefore, estimation of enterprise's competitive ability at a certain market or its sector is based on analysis of technological, production, financial and selling abilities of an enterprise.

That's why enterprise's competitive ability at a market is the main criteria of efficiency of innovation management system.

To achieve competitive advantages an enterprise should use highly-effective innovative policy and innovation management system. They promote constant growth of quality of manufactured products and provide increased level of consumer satisfaction.

The main factors which promote realization of enterprise's innovative policy are: high level of enterprise's scientific and technological potential; availability of quality control system (based on international standards) at an enterprise; availability of reserves of financial and material and technical assets at an enterprise; availability of optimal legal framework and governmental support to carry out innovative policy; availability of a system of material and moral stimulation of innovative activity.

The increase of product's competitive ability after implementation of innovative policy measures can be characterized with the help of the following indicators:

- 1) Level of export orientation (ratio of amount of products sold at certain market segments (worldwide, internal) to the total amount of sold products). The average level of this indicator by sampled enterprises is 13,7%;

- 2) Level of technological development (ratio of amount of goods produced according to certain types of innovative technologies (high, new, traditional ones) to the total amount of goods sold). The index by sampled enterprises is 8,9%;
- 3) Updating level (ratio of amount of new products developed in production to the total amount of produced goods). There is no information concerning this factor;
- 4) Certification level (ratio of amount of goods produced according to technologies certified by international standards to the total amount of produced goods). There is no information concerning this factor.
- 5) Innovative policy is formed and updated under the influence of different factors of enterprise's external and internal environment.

External environment is a set of economic entities and driving forces influencing by factors of macro-environment subdivided into factors of direct and indirect influence. Factors of direct influence include laws, resource providers, state regulation establishments, competitors, intermediate sellers and transportation brokers. Factors of indirect influence are the condition of country's national economics, progress in science and technology, political, demographic, social factors.

Internal environment is a set of enterprise's entities and driving forces allowing to establish relationship with resource providers and product consumers. Factors of internal environment which influence implementation of innovative policy include: technical level; science-intensive manufacturing, state of scientific and technical potential; materials-output, energy-output, capital-output ratios; degree of depreciation of fixed assets; financial stability etc.

The given research analyses factors of enterprise's internal environment which have

the most considerable influence on innovations.

4. Estimation of material and technical base of Russian corporations

The conducted estimation of material and technical base has shown the following results given in table 1.

Leaders in efficiency of non-circulating capital which characterizes the efficiency of

use of organization's non-current assets and which shows the general amount of the organization's intangible assets, research and development results and also fixed assets in the ratio of business scope are pharmaceutical industry (0,3), petroleum and oil and gas industry (0,18), food industry (0,15) and non-ferrous and iron and steel industry (0,15) as of the end of 2014. At the same time the tendency for these branches in the analyzed period is negative which may either result from reduction of profit or reduction of non-current assets.

Table 1. Analysis of indicators of material and technical condition of Russian corporations' activity for 2012–2014

Industry	Industry average ratio of non-circulating capital efficiency			Industry average ratio of fixed assets replacement			Industry average capital-labor ratio		
	2014	2013	2012	2014	2013	2012	2014	2013	2012
Industrial and infrastructure construction	0,12	0,03	0,1	0,99	1,23	1,27	694,86	701,76	705,38
Mechanical engineering	0,03	0,03	0,05	1,26	1,43	1,45	188,5	190,85	202,55
Multy-activity holdings	0,14	0,22	0,33	0,98	1,07	1,05	39,9	40,9	38,3
Petroleum and oil and gas industry	0,18	0,21	0,23	1,04	0,97	0,98	5152,29	4673,29	4247,58
Wholesale and retail trade	0,85	0,42	0,41	1,2	0,84	0,84	33,91	47,83	28,65
Food industry	0,15	0,04	0,04	0,73	0,78	0,78	1,89	2,11	2,37
Communications and telecommunications	0,1	0,2	0,21	1,17	1,12	1,1	841,74	752,93	709,2
Transport	- 0,11	0,01	0,01	1,16	1,15	1,14	2119,28	1990,57	1889,45
Coal industry	- 0,24	0,01	0,01	1,25	0,95	0,94	1561,25	1430,88	1476,58
Pharmaceutical industry	0,3	0,9	0,91	1,04	1,8	1,81	58,8	56,4	31,4
Chemical industry	0,12	0,11	0,11	1,13	1,03	1,05	2162,06	1941,68	1828,09
Non-ferrous and iron and steel industry	0,15	0,17	0,18	1,02	1,08	1,09	907,53	894,08	900,4
Electric power industry	0,02	0,22	0,23	1,08	0,99	0,96	11010,26	10930,89	9895,24

The ratio of fixed assets replacement displays high indicators in all industries (over 1,04). It's noteworthy that increase of the ratio of fixed assets replacement means increase of number of machines in the common fleet and equipment of new and, as a rule, more efficient machines which provides conditions for increase in output of new products, improvement of their quality and competitiveness (Zhdanova, 2014).

At the same time detailed analysis of large corporations' ratio of fixed assets replacement gives ground for noting the following trends. The highest rates of fixed assets replacement belong to Lukoil, and minimal to Novatech, as of 2014.

The largest share of fixed assets by companies:

OAO Gazprom – main pipelines: 2014 – 62,43%, 2013 – 64,32%; machines and equipment share: 2014 – 13,49%, 2013 – 12,88%;

OAO Lukoil – constructions: 2014 – 72,78% and 2013 – 58,46%; machines and equipment share: 2014 – 20,19%, 2013 – 26,13%;

OAO Rosneft Oil Company – constructions: 2014 – 83,98%, 2013 – 84,00%, machines and equipment share: 2014 – 15,56%, 2013 – 15,57%;

OAO Surgutneftegaz – constructions and transmission units: 2014 – 74,48%, 2013 – 71,08%; machines and equipment share: 2014 – 15,52%, 2013 – 18,07%;

OAO Transneft – constructions: 2014 – 59,23%, 2013 – 69,22%; machines and equipment share: 2014 – 30,89%, 2013 – 19,89%;

OAO Uralkali – machines and equipment: 2014 – 51,21%, 2013 – 56,25%.

According to the analysis, the structure of fixed assets mainly consists of constructions, the share of machines and equipment doesn't even reach 20% in the amount of fixed assets. It's necessary to understand that rational use of organization's fixed assets and productive capacities facilitates improvement of

technical and economical production indicators, including increase in output of products, reduction of their cost value and labor hours, which is key foundation of Russian economy modernization and a base for innovative development (Avdasheva, 2010). The capital-labor ratio has a tendency for growing in such branches as petroleum and oil and gas industry, transport, coal, pharmaceutical, chemical and electric power industry.

On the whole, material and technical indicators for the analyzed period display low values and negative dynamics which tells about reduction of expenses for output expansion and inefficient use of non-circulating capital.

5. Russian corporations' research and development activity

The basic and most interesting indicators in the scope of consideration of innovative activity problem are those of research and development line. The calculated values for 2012-2014 are provided in table 2.

As we can see, research and development indicators show extremely low values. The percentage of expenses for research and developments is so low that in such branches as industrial and infrastructure construction, non-ferrous and iron and steel industry, wholesale and retail trade equals zero for the analyzed period.

The leader of research and development activity is petroleum and oil and gas industry. The leaders of expenses for intangible assets among corporations are Uralkali which expended 35 200 mln. rub. for 2014, of this amount 35 193 mln.rub. make up exclusive rights, then goes Rosneft having 9 586 mln.rub. with 8 748 mln.rub. being licenses for extraction of minerals and 662 mln.rub. of exclusive rights for computer programs and databases (Degtyareva, 2011). Regarding the structure of intangible assets, in 2014 Russian corporations' patents vary within 0,2%-2,18%. Gazprom's 99,61% intangible

assets fall to rights and items of intellectual property.

Table 2. Analysis of indicators of research and development condition of Russian corporations' activity for 2012-2014

Industry	Industry average ratio of intellectual property availability			Industry average ratio of research and developments		
	2014	2013	2012	2014	2013	2012
Industrial and infrastructure construction	0	0	0	0	0	0
Mechanical engineering	0,02	0,02	0,03	0,015	0,009	0,006
Multy-activity holdings	0	0	0	0	0	0
Petroleum and oil and gas industry	0,75	0,004	0,42	0,2	0,23	0.16
Wholesale and retail trade	0	0	0	0	0	0
Food industry	0,01	0	0,01	0	0,02	0
Communications and telecommunications	0,004	0.004	0,003	0,03	0,02	0,01
Transport	0,12	0,12	0,14	0,001	0,001	0.001
Coal industry	0,019	0,02	0,04	0	0	0
Pharmaceutical industry	0,01	0,01	0.02	0	0	0
Chemical industry	0.02	0,02	0,04	0	0	0
Non-ferrous and iron and steel industry	0	0	0	0	0	0
Electric power industry	0,001	0,001	0	0	0	0

Expenses by “Research and development results” item in 2014 made up 54 127 mln.rub. in total on all the provided companies. The increase by this expense item made up 1 463 mln.rub. comparing with the previous year. However the number in percentage correlation is dramatically small. For example, research and development expenses of Apple corporation in 2014 achieved six billion dollars and have grown by 33,3% for a year (Arustamyan, 2009). Analysis of expenses for research and development activity disproves the hypothesis that large Russian corporations allocate big funds for intangible assets and research and developments.

6. Analysis of Russian enterprises' investment activity

Of big importance are investment activity indicators. They determine the amount of finance allocated by a company to property modification and improvement and to financial investments to other companies (Kleiner, 2015). Low value of indicators shows that a company doesn't pay due attention to expansion of fields of activity and research of reserves for subsidiary income. Table 3 provides calculated rates of investment activity of Russian 70 largest enterprises for 2012-2014.

Table 3. Analysis of indicators of Russian corporations' investment activity for 2012-2014

Industry	Industry average ratio of investment activity			Industry average ratio of the structure of long-term assets			Industry average ratio of investment			Industry average ratio of long-term investment supply		
	2014	2013	2012	2014	2013	2012	2014	2013	2012	2014	2013	2012
Industrial and infrastructure construction	0,784	0,74	0,74	0,53	0,53	0,83	4,63	0,97	1,67	0,71	0,81	0,77
Mechanical engineering	0,61	0,61	0,56	0,34	0,46	0,38	0,71	0,81	0,82	0,89	0,84	0,83
Multy-activity holdings	0,99	0,99	0,99	0,2	0,06	0,08	0,9	0,98	0,9	0,9	0,96	0,99
Petroleum and oil and gas industry	0,63	0,56	0,5	0,38	0,4	0,46	0,8	0,9	0,94	0,98	0,8	0,75
Wholesale and retail trade	0,96	0,96	0,96	0,19	0,38	0,49	1,45	1,07	0,96	0,45	0,51	0,54
Food industry	0,71	0,94	0,91	0,31	0,34	0,99	1,82	2,41	3,43	0,52	0,51	0,55
Communications and telecommunications	0,36	0,36	0,36	0,41	0,39	0,36	0,56	0,63	0,6	1,04	1	1,04
Transport	0,4	0,36	0,43	0,99	0,84	0,36	0,57	0,41	0,43	0,97	-0,17	-0,42
Coal industry	0,46	0,57	0,38	1,19	0,87	1,47	0,25	0,4	0,78	0,74	0,85	0,62
Pharmaceutical industry	0,97	0,97	0,96	0	0,3	0	0,9	0,7	2,7	1,1	1,1	0,4
Chemical industry	0,41	0,45	0,43	0,71	0,44	0,41	0,85	0,75	0,69	0,79	0,82	0,99
Non-ferrous and iron and steel industry	0,56	0,56	0,51	0,62	0,47	0,35	0,59	0,79	0,91	0,85	0,91	0,96
Electric power industry	0,66	0,72	0,34	0,19	0,19	0,16	0,73	0,78	0,83	0,85	0,87	0,89

The investment activity ratio characterizes a share of corporate funds allotted to property modification and improvement and to financial investments to other organizations (Kondratiev, 2013). The leaders here are such

branches as pharmaceutical industry, wholesale and retail trade, industrial and infrastructure construction, petroleum and oil and gas industry (Table 4).

Table 4. Share of financial investments to non-current assets, %

Company	Share of financial investments to non-current assets, %	
	2014	2013
OA0 Novatech	99,88	99,77
OA0 Lukoil	98,56	98,07
OA0 Transneft	98,55	98,43
OA0 Rosneft Oil Company	71,69	34,33
OA0 Surgutneftegaz	49,37	52,22
OA0 Uralkali	31,18	11,55
OA0 Gazprom	25,51	23,66

The given trend is also confirmed by the ratio of long-term investments supply, which shows the share of investment capital placed in fixed assets. All the branches display quite low values, and some industry indicators, for example in pharmaceutical industry, equal to zero as of 2012-2014. Thus, Russian corporations prefer to invest available funds to financial tools (subsidiary enterprises, granting of loans, deposits), and not to

research and development sphere or intangible assets (Samosudov, 2013).

7. Estimation of Russian enterprises' financial indicators

Calculated rates on financial aspect are provided in table 5.

Table 5. Analysis of financial aspect of Russian corporations' activity for 2012-2014

Industry	Industry average ratio of financial stability			Industry average ratio of financial independence			Industry average ratio of solvency		
	2014	2013	2012	2014	2013	2012	2014	2013	2012
Industrial and infrastructure construction	0,7	0,61	0,73	0,48	0,44	0,47	2,87	2,07	2,19
Mechanical engineering	0,62	0,77	0,73	0,41	0,48	0,49	1,01	1,19	1,33
Multy-activity holdings	0,9	0,9	0,9	0,8	0,9	0,8	3,3	8,02	5,3
Petroleum and oil and gas industry	0,76	0,78	0,81	0,49	0,89	0,54	2,92	2,75	3,06
Wholesale and retail trade	0,87	0,87	0,98	0,73	0,62	0,62	194,8	945,1	716,7
Food industry	0,57	0,48	0,46	0,82	0,79	0,66	4,77	3,35	2,1
Communications and telecommunications	0,8	0,83	0,83	0,5	0,5	0,5	2,93	2,5	2,2
Transport	0,47	0,48	0,49	0,26	0,22	0,31	0,82	0,37	0,62
Coal industry	0,73	0,8	0,89	0,16	0,29	0,34	0,22	0,45	0,55
Pharmaceutical industry	0,2	0,1	0,6	0,2	0,1	0,6	0,3	0,1	1,3
Chemical industry	0,8	0,78	0,76	0,52	0,55	0,55	0,9	1,57	1,53
Non-ferrous and iron and steel industry	0,82	0,85	0,79	0,45	0,54	0,57	2,22	2,33	3,28
Electric power industry	0,79	0,83	0,77	0,66	0,68	0,69	20,7	32,8	4,6

The financial stability ratio shows the share of internal funds in the total sum of sources of financing. The recommended value for this indicator is from 0,8–0,9, worrying values are those lower 0,75. In 2014 the risk group included industrial and infrastructure construction (0,7), mechanical engineering (0,62), food industry (0,57), transport (0,47), pharmaceutical industry (0,2). The other industries display recommended values.

The value of financial independence ratio gives information about the extent to which an organization is independent from raising of funds belonging to other organizations (Sovetova, 2014). The bigger is a share of property capital (internal funds) the more stable is the organization's activity. The considered ratio shouldn't be less than 0,5. In 2014 the risk zone included such industries as transport, pharmaceutical, coal industries and mechanical engineering. Quite unstable is the position of petroleum and oil and gas industry and non-ferrous and iron and steel industry.

The solvency ratio (the ratio of property capital to debt funds) shows which part of activity is financed at the expense of internal funds and which - at the expense of borrowed ones (Neelova, 2014). The recommended value is over or equals 1. In most industries the situation conforms to the required standards. Problems are revealed in such industries as transport, pharmaceutical, coal industries.

On the whole, the analysis of financial indicators shows a good position of Russian corporations, many of them possess their own funds, with a minimum rate of debt funds which is a good sign since it means that in case of necessity Russian companies will be able to allocate funds to research and development.

8. Integrated analysis of innovative activity at Russian enterprises

Separate consideration of indicators as has been done above the estimation of

corporations' activity may give ambiguous results. As a consequence, the need in integrated indicators generalizing separate results of companies' activity is quite explainable (Markina, 2013). Besides, the majority of economic agents – owners, creditors, investors, banks, state bodies – are interested in single-valued assessment of activity.

The following formulas are used to determine the integrated indicator of innovative activity components:

$$MTI = \sqrt[3]{MTI1 * MTI2 * MTI3} \quad (1)$$

$$RDI = \sqrt[2]{RDI1 * RDI2} \quad (2)$$

$$FI = \sqrt[3]{FI1 * FI2 * FI3} \quad (3)$$

$$IAI = \sqrt[4]{IAI1 * IAI2 * IAI3 * IAI4} \quad (4)$$

The composite indicator of innovative activity is calculated on the basis of geometric mean value from integrated indicators of material and technical (MTI), research and development (RDI), financial (FI) and investment activity (IAI) indicators.

$$IA = \sqrt[4]{MTI * RDI * FI * IAI} \quad (5)$$

Below is the analysis of Russian corporations' innovative activity for 2012–2014.

According to the provided table 6 it's possible to conclude that the level of innovative activity at Russian corporations is not changing with time. This points to the fact that Russian corporations are still denying the important role of innovative activity. In the provided assessment the leaders in the field of innovative activity are companies of oil, chemical industries which possess a wide range of resources and the ability to create various types of innovations. The list of enterprises with the lowest innovative activity includes wholesale and retail trade, multi-activity holdings and corporations which business is connected with sales of real estate. Thus, it is fair to say that service industries show no innovative activity.

Table 6. Results of estimation of Russian corporations’ innovative activity for the period of 2012-2014

Innovative activity level	Innovative activity indicator value	Number of companies		
		2014	2013	2012
Absolute	$0,9 < IA \leq 1$	1	0	1
High	$0,8 < IA \leq 0,9$	0	0	0
Normal	$0,7 < IA \leq 0,8$	0	0	0
Average	$0,6 < IA \leq 0,7$	0	0	0
Weak	$0,5 < IA \leq 0,6$	0	1	0
Critical	$0,4 < IA \leq 0,5$	1	2	2
Crisis	$ID \leq 0,4$	68	67	67
TOTAL		70	70	70

5. Conclusions

The main scientific results, conclusions and suggestions obtained during this research consist in the following:

- 1) For today 97% of Russian corporations show a crisis level of innovative activity. This can be explained both by difficulties of infancy of companies’ innovative activity in different spheres and by unformed system policy of the largest corporations on work in the sphere of innovative development realization programs, connected with a corporate model of Russian enterprises which are characterized by low sensitivity of productive facilities and by rigidity of hierarchical connections that accept innovations with difficulty.
- 2) At present time activation of innovative activity at Russian enterprises is the most significant component of competitiveness development. The necessary conditions are improvement of quality of personnel training, search of the most organic set of internal and external investment resources, building and assessment of innovative capacity.
- 3) Solution of the problem of innovative activity increase at enterprises and development of competitive advantages on its basis can’t be achieved without formation of their scientifically proved technical regulations. However there is practically no unity in key notions connected with these issues and it requires special study.
- 4) The situation in innovative sphere depends on a set of positive and negative factors: low level of direct investments; inefficient management structure at most Russian enterprises; aging of technical and productive personnel at enterprises; absence of professional training and experience among young personnel; physical and functional depreciation of fixed assets of enterprises; low capacity of Russian enterprises; high interest on commercial loans; low competitiveness of home industry; loss of export markets

of non-resource industries, on the other hand: personnel requiring development and professional training; low number of universities providing scientific activity; increase in financing of science by means of federal target programs. There are innovative enterprises in Russia but the majority of their inventions are aimed at maintenance and insignificant improvement of the existing types of equipment and technologies.

5) The existing inefficient innovative infrastructure with absence of clear relations among all participants of innovative activity makes impossible to provide proper cooperation and effective work in order to achieve the aim of stepping up of innovative activity and improvement of enterprises' competitiveness.

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